

IBM DataPower Gateway

*Security, integration, control and optimization
in a purpose-built cloud enabled gateway*

Highlights

- Purpose-built security and integration gateway to address business needs for API, cloud, mobile, web, B2B, and SOA workloads.
 - Enforce consistent governance, security, and control policies across all channels and workloads.
 - Simplify and secure network topologies, reduce development and operational costs, and eliminate siloed islands of application security.
 - Provides advanced routing and intelligent load distribution
 - Enables high-speed JSON, XML, and binary transformations.
 - Simplify development with an optimized and secured JavaScript runtime.
 - Available in physical and virtual form factors.
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The global shift towards a consumer-centric economy is prompting a digital reinvention of businesses of all sizes. Business and IT leaders at organizations must deliver new and innovative services to remain competitive. Digital transformation is being driven by application programming interfaces (APIs) which provide new ways to deliver application services to customers, employees, business partners, and developers looking to easily leverage services provided by your company.

During this reinvention, infrastructure and network topology must be resilient and ready for change. Existing workloads must remain secure and not be adversely impacted. Your business requires an approach that enhances the value of your existing infrastructure and application investments while reducing security risks and simplifying operation. In parallel, many businesses are looking to leverage capabilities “in the cloud”, providing new methods for rapid deployment of new applications and services. While providing many benefits, it also raises new challenges for security, performance, and operability.

Integration, governance and security are now more important than ever, and should be consistently implemented across all deployment options, such as on premise, in the cloud, or in a combined hybrid environment. IBM understands these challenges and has developed gateway that is purpose-built to help secure, integrate, control and optimize your application infrastructure. IBM® DataPower® Gateways are designed to help IT leaders simplify infrastructure, integrate and optimize services, and secure new and existing workloads across multiple channels. Using DataPower, you will benefit from a gateway that provides a consistent no-code approach to address the application security, governance, and integration needs for API, cloud, mobile, web, B2B, and SOA workloads.

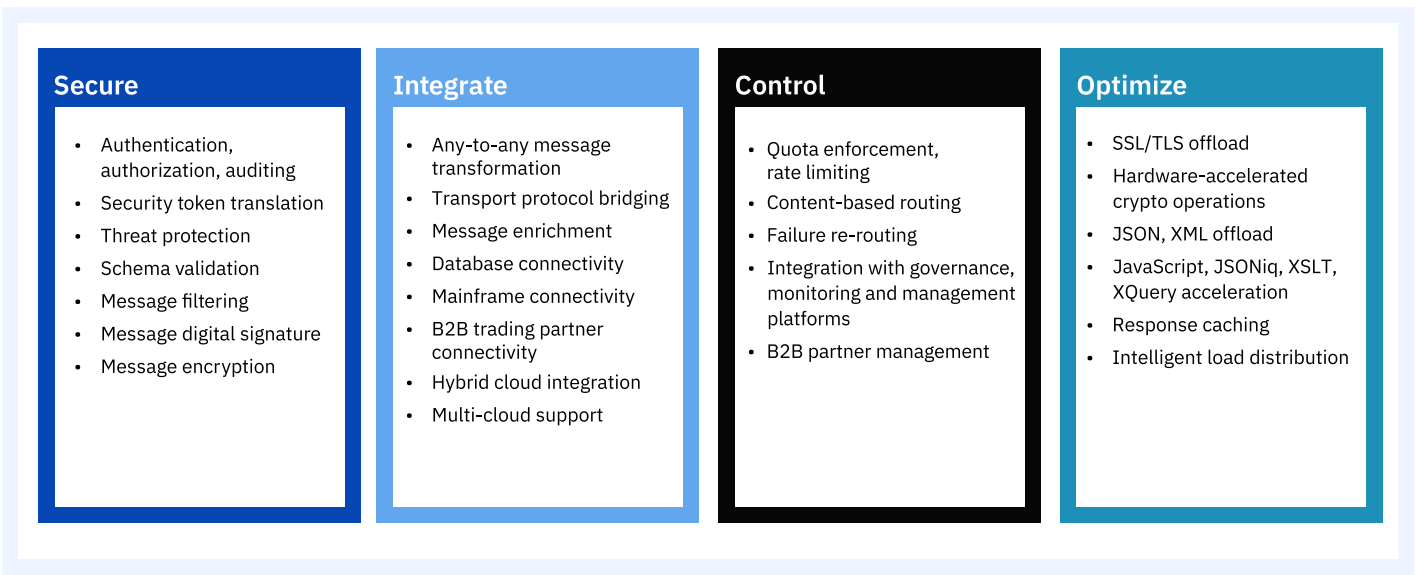
Cost-effective change is possible

Your business services encompass more than just your IT systems; they comprise the sum of interactions and relationships that make up your business. Seamless connectivity to applications, business processes, and effective connectivity with customers, partners, and suppliers is paramount to success. To further extend flexibility and achieve cost-effective service delivery, your teams will need to be prepared to extend these connections into the expanding realm API and cloud-enabled services and applications.

Your gateway strategy must include the ability to enforce industry standards and easily adapt to new standards as they are defined. Your approach should enhance the value of existing infrastructure investment while improving speed to market, reducing training costs and optimizing application performance.

IBM DataPower Gateways can help you untangle costly IT complexity associated with point-to-point connectivity and integration, application and data security, API management and security, and enterprise mobility. IBM DataPower Gateways can help you make the most of your existing infrastructure investments and provide a robust platform for new service delivery on premise or in the cloud, while helping to reduce operational costs.

IBM DataPower Gateway key capabilities



The IBM DataPower Gateway provides an integrated set of capabilities that are designed to help organizations thrive: security, integration, routing, service level management, and optimized access to a full range of API, cloud, mobile, web, B2B and SOA workloads. IBM DataPower Gateway is usually deployed as the first point of entry and egress for data moving in and out of your enterprise. Because all traffic flows through DataPower, it gathers essential message traffic information that can be fed to a centralized analytics repository, making ongoing management and control much easier.

IBM DataPower Operations Dashboard (DPOD), a complementary offering to IBM DataPower Gateways, allows you to quickly troubleshoot problems in your DataPower infrastructure. DataPower Operations Dashboard will help you improve efficiency across all organizational roles involved in supporting your environment. DataPower Operations Dashboard greatly simplifies trouble shooting by providing easy to navigate graphically displayed information enabling the user to rapidly determine the cause of errors that have been encountered. DataPower Operations Dashboard also provides standard and custom reports that can be used by management to monitor the ongoing operations, provide planning data, and assist in compliance validation.

DataPower Operations Dashboard supports both physical and virtual DataPower gateways that are deployed on premise or virtual gateways that are deployed in any Cloud environment.

Recent enhancements further extend the services and capabilities to include monitoring and reporting for message traffic generated from IBM API Connect. This provides a fully integrated operational view that enables quick problem diagnosis for API traffic being supported in the customer's environment.

DataPower Gateway X2: delivering ultimate flexibility and performances



The latest generation of the hardware appliance family is the IBM DataPower Gateway X2. IBM DataPower Gateway X2 continues to focus on two key themes: security and performance. IBM DataPower Gateway X2 utilizes the latest generation of hardware components to deliver unparalleled throughput for application traffic of all types. At the heart of IBM DataPower Gateway X2 are the embedded security features which ensure the gateway can be deployed in the most secure environments, eliminating risks for attacks against your applications. The new High Security Module (HSM) version enables many advanced cryptographic operations to be supported within the gateway. This high-performance component enables encryption key generation, storage, and key management, which enables DataPower to provide encryption proxy functions that improve overall system security. This model provides improved support for security protocols such as IPSEC, SSL, TLS.

IBM DataPower Gateway X2 continues to achieve the long-standing goal of supporting all workloads while ensuring that resources are securely consumed. IBM DataPower Gateway X2 also provides higher reliability and lower power consumption, which builds on the proven track record and low total cost of ownership that DataPower customers around the globe have experienced.

Hardware at-a-glance

- 2U high-density rack-mount design
- Two network I/O modules for increased flexibility and serviceability (eight 8 Gb and four 10 Gb Ethernet ports, plus two 10 Gb SFP+ ports)
- Latest-generation hardware technology for increased reliability, performance, and capacity
- Hardware Security Module (HSM) providing enhanced cryptographic operations (optional feature)
- Improved serviceability with multiple field-replaceable parts
- Intrusion and tampering detection
- LED indicators for enhancing hardware diagnostics and simplified problem isolation
- Multiple plug-in software modules: Integration, Application Optimization, Tenant Isolation, B2B, and TIBCO Enterprise Message Service

New specs

- **Trusted Platform Module**
- **Customized intrusion detection**
- **Cryptographic Acceleration Card**
- **Runtime Hardware Diagnostic**
- **Intelligent Platform Management Interface**
- **Supercapacitor Powered Flash-backed RAID Cache**
- **Multiple Replaceable Units**
- **Customer Replaceable Units (CRU)**
- **Fan, Power Supply, HDD, Network Module**
- **Field Replaceable Units (FRU)**
- **Appliance, CPU, Memory, Flash Drive, Coin Battery, Supercapacitor for RAID**
- **Cryptographic Acceleration Card, HSM Card, RAID Card**
 - Purpose-built, high capacity 2U rack mount design
- **Increased capacity, higher performance CPU & memory**
 - Two Intel XCC 12C, 2.6GHz, 120W
 - 24C/48T total platform compute
 - 6-ch DDR4@2666MHz memory speed
 - Extended Supply Life Server SKU
- **192GB total platform memory capacity**
 - 12x 16GB DDR4 DIMMs mount design
- **2.4TB total platform storage capacity**
 - 2 x 1.2TB drives configured in a RAID level 1
 - RAID controller with 2GB Cache and 12Gb transfer
 - SAS Drives

Eradicate siloes of security:

Over the past several years, organizations have responded to the market and enabled support for new network traffic channels in order to meet customer and partner demands. Channel-specific network hardware and software is deployed, along with a skilled workforce to develop, support and secure these new channels. Although this approach may help you reach your goals, the resulting network landscape is complex and costly to support and maintain. More alarming is the creation of islands of security, where each channel requires its own unique security policy and governance model, increasing the risk of security breaches.

Network teams can benefit from the IBM DataPower Gateway's ability to handle multiple channels of traffic in a single gateway. Similarly, security teams often find it easier to author security policy using a single, consistent configuration-driven approach. And administrators can troubleshoot and identify problems in their infrastructure with IBM DataPower Operations Dashboard. Consolidation of these different channels of interaction helps simplify the network topology, reduce development costs and simplify operations, resulting in real cost savings and reduced risk.

The best security and integration gateway is the one that helps your business aspirations become reality and helps keep your organization compliant and clear of security breaches.

DataPower security features can help mitigate risks for mission-critical enterprise applications

The IBM DataPower Gateway delivers advanced access control for API, Cloud, mobile, web, B2B and SOA workloads without complex configuration or custom code. It provides the higher levels of security-assurance certification that are required by such enterprises as financial services and government agencies, including Public Key Infrastructure (PKI), Federal Information Processing Standard (FIPS), 140-2 Hardware Security Module (HSM), General Services Administration (GSA) eAuthentication and Homeland Security Presidential Directive (HSPD)-12, US Government DOD STIG specifications, Payment Service Directive 2 (PSD2), and Open Banking initiatives.

The combination of high-performance hardware acceleration with simplified deployment and ongoing management represents a powerful combination for your organization, one that can help reduce the costs of securing mission-critical services, applications and data.

Participate in the API Economy

The IBM DataPower Gateway serves as the security and access management gateway for the IBM API Management solution, IBM API Connect. The integration of these products provides a world-class solution designed to meet the most stringent API business requirements in the industry. The IBM DataPower Gateway provides access and authentication services at the edge of the network. It also helps secure the message content for all API interactions and then utilizes advanced routing controls to manage and enforce service level policies throughout the enterprise. All API interactions are logged and reported to the IBM API Analytics component, which enables both runtime and historical analytics and reporting.

API services are not restricted to just IBM's API Connect offering. IBM DataPower Gateways are used to provide security processing for many different API solutions available in the market. IBM DataPower is used as the edge of network enforcement point for API services such as authentication, authorization, and API content validation. IBM DataPower's embedded service level policy management is also utilized to ensure your enterprise service level requirements can be enforced.

Start your journey to the cloud

More and more, enterprises of all sizes are leveraging cloud service providers, such as the IBM Cloud platform, to build innovative applications to meet their business and customer needs. Exploiting cloud providers improves flexibility and speed to market while reducing the skill levels and infrastructure costs that would be incurred for a more traditional on-site deployment.

In many cases, these new applications require access to in-house enterprise data. This “hybrid cloud”, where one part is ‘on the cloud’ and the other part is on-premise, poses unique security challenges. The cloud-based service must be able to gain access to your on-premises data in a secure way. IBM DataPower Gateway provides a simple configuration-based solution that creates a security-rich channel between the on-premise services and those deployed ‘in the cloud’.

The IBM DataPower Gateway, when combined with IBM Cloud Private, enables enterprises to integrate security and governance functions in a single drop-in gateway that can reduce ongoing maintenance costs. IBM Cloud Private can open your existing assets, expertise and processes to enable a more nimble consumption model that helps drive innovation and meets business demands. With containers, Kubernetes and Cloud Foundry at the base, organizations can accelerate adoption of container technology as a strategic building block for increasing application developer productivity and decoupling teams to enable speed and agility. IBM DataPower Gateway can be utilized as the security-rich gateway for IBM Cloud Private, which helps provide integration, control and optimized access to a full range of workloads. In addition, because the IBM DataPower Gateway is usually the first point of entry and egress for data moving in and out of your enterprise, it is ideally positioned to gather essential information to feed your big data and analytics systems.

Most cloud services are now provided via container technologies. Docker® has evolved from a container runtime to a secure enterprise-ready container platform that allows enterprises the freedom of choice, while providing a foundation for their digital and multi-cloud initiatives. IBM® DataPower® Gateway for Docker combines the power of the DataPower Gateway with the flexibility of Docker and runs natively inside a Docker container. This provides a robust, cloud native gateway that enables flexible deployment of DataPower on IBM Cloud, Microsoft Azure, Amazon Web Services, and many other cloud service providers. The ability for DataPower Gateway to be deployed in this fashion on the cloud enables the security gateway to reside as close to the business application, business services, and data as possible, which is widely considered as a security “best practice”.

Increase trust in existing services with run-time policy enforcement

The IBM DataPower Gateway enables enterprises to integrate security and governance functions in a single “drop-in” gateway that reduces ongoing maintenance costs. You can quickly configure gateway capabilities for service level policies, authentication policies, routing rules, and message validation that meet the business needs. DataPower Gateway supports custom security and routing rules that use either GatewayScript (a customized programming model based on JavaScript) or XSLT. The IBM DataPower Gateway is designed to be a mission-critical policy enforcement and execution engine for today’s multi-faceted messaging environment, making it easier for you to use customizable roles and rights to control access to applications, APIs, services and data. These services are fully optimized in the DataPower runtime which delivers these robust functional capabilities with minimal performance impacts to the message traffic being managed.

“Drop-in” security for Mobile and Web applications

Modern web applications have evolved from static pages and forms into interactive experiences that far exceed any native desktop programs.

With the proliferation of mobile devices, customers, partners and employees have come to expect the same level of interactivity and data access on both web and mobile channels. Security teams are challenged to apply modern security practices to this rapidly expanding environment. IBM DataPower Gateways support the latest programming and security policies utilized in these mobile applications and services, all available via configuration options making it a cost-effective way to secure these applications. To further enhance the mobile experience, DataPower provides application level caching support, which can help improve end user response times while reducing the processing requirements of the mobile application servers.

High-speed transformation capabilities

By using the built-in transformation capabilities of the IBM DataPower Gateway Integration Module, you can easily bridge rich web applications to more formal enterprise standards such as REST+JSON or SOAP+XML. IBM DataPower Gateways provide native support for JSON, REST, SOAP, and MQ which can help your team more easily support new devices, social networking, cloud computing and software-as-a-service (SaaS) applications.

Access new partners with standards-based Business to Business messaging

The IBM DataPower Gateway's Business to Business (B2B) module delivers core functions that integrate and consolidate B2B trading-partner and transaction management. It can help your business extend its B2B implementations and solve heterogeneous integration challenges. The B2B module provides a high-throughput, security-rich entry point at the edge of the enterprise for connecting, securing, and routing B2B data. IBM DataPower Gateway consolidates B2B trading partner connectivity and transaction management, which can dramatically reduce the time and effort required to on-board new trading partners.

The B2B module augments the base IBM DataPower Gateway capabilities with support for message protocols such as AS1, AS2, AS3, AS4 and ebMS. This support provides unique message and file transfer processing capabilities for EDI, XML and binary data, ensuring a single point of message management and security processing for partner interactions. In addition to supporting these protocols and message formats, the IBM DataPower Gateway provides powerful message mediation and transformation support which simplifies trading partner interaction by eliminating the need for all partners to standardize on a single set of protocols. Unique support is also provided for advanced partner interactions such as guaranteed message delivery, message queuing and the ability to resend messages in the event of message loss. A built-in transaction viewer enables real-time management and visibility of all B2B activities.

By integrating many core B2B, API and web services functions into a single gateway, you can successfully access new customers and new routes to market by simplifying, standardizing and securing the integration of partners, customers and suppliers with your enterprise.

Maximize existing SOA investments

For SOA channels, the IBM DataPower Gateway provides web service security, message validation, cryptographic operations and advanced threat protection both at the protocol and transport layers. Rapid XML and XSL processing results in higher throughputs and less congestion. The IBM DataPower Gateway can serve as an SOA Governance Policy Enforcement point. This helps ensure access management policies are enforced while delivering advanced service level management for SOA workloads. The IBM DataPower Gateway provides these capabilities onboard or can integrate with external servers (such as WebSphere® Service Registry and Repository) to enable enterprise-wide SOA governance.

Extending the Services of IBM DataPower Gateway

IBM DataPower Gateway has five optional modules that extend services and increase the business value of the gateway. These upgrades can be quickly installed once the gateway is in use. These optional modules are available on both the physical and virtual gateway, with the exception of the Tenant Isolation module which is support on the physical gateway only.

Tenant Isolation Module

This module enables a physical DataPower gateway to be partitioned in up to three instances of DataPower. Each tenant is allocated a dedicated amount of CPU and memory resources, enabling the user to easily customize the performance characteristics for the specific workload running on each partition. The tenants can run the same or different firmware than the base system, and each can be independently started and stopped without any impact or disruption to workloads running on other tenants.

This enables the users to increase the utilization of the gateway, providing improved operational flexibility while reducing operations costs.

Integration Module

This module provides the message mediation and transformation services previously described. A wide range of protocol mediation support is provided, and can be exploited via configuration options within the gateway.

Business to Business Module

As previously described, this module extends the Integration capabilities of the gateway to support specific protocols for business to business or partner communications.

Application Optimization Module

This module extends the routing services for DataPower. This provides network load balancing and load distribution, helping to optimize network bandwidth and balance message traffic across the DataPower Gateways that are deployed within the environment. This module provides front side load balancing, which is typically used to route traffic to multiple gateways in the DMZ. It also provides application aware load distribution to the target applications and servers that are the recipients of inbound messages.

Tibco EMS Module

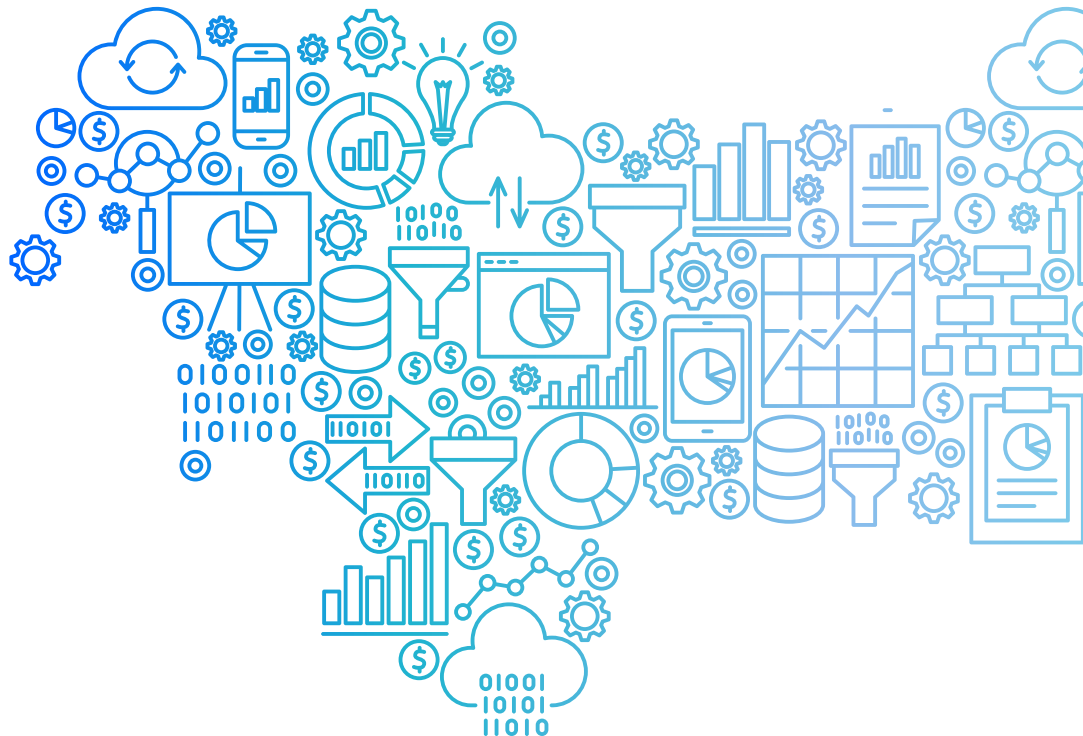
This module extends the integration services for support of Tibco applications that are deployed within the enterprise.

Deployment options

The IBM DataPower Gateway provides the same capabilities in either a hardened physical form factor or a virtual gateway.

These can be mixed and matched in an enterprise, providing maximum deployment flexibility while delivering the best total cost of ownership. The IBM DataPower Gateway virtual gateway can be deployed on dedicated hardware or via cloud services such as:

- **VMware ESX Server and Workstation**
- **Citrix XenServer**
- **IBM Cloud**
- **Amazon EC2**
- **Microsoft Azure**
- **IBM Cloud Private**
- **RedHat**
- **Ubuntu**
- **Docker**



Supported standards and protocols

Data format and language

- JavaScript
- JSON
- JSON Schema
- JSONiq
- REST
- SOAP 1.1, 1.2
- WSDL 1.1
- XML 1.0
- XML Schema 1.0
- XPath 1.0, 2.0 (XQuery only)
- XSLT 1.0,
- XQuery 1.0,
- JSONiq

Security policy enforcement

- OAuth 2.0
- OpenID Connect, Social Login
- JSON Web Encryption (JWE)
- JSON Web Signature (JWS)
- JSON Web Token (JWT)
- JSON Web Key (JWK)
- JSON Web Algorithm (JWA)
- SAML 1.0, 1.1 and 2.0, SAML Token Profile, SAML queries
- XACML 2.0
- Kerberos ((including S4U2Self, S4U2Proxy)
- SPNEGO
- RADIUS, RSA SecurID OTP using RADIUS
- LDAP versions 2 and 3
- Lightweight Third-Party Authentication (LTPA)
- Microsoft Active Directory
- FIPS 140-2 Level 3 (w/ optional HSM)
- FIPS 140-2 Level 1 (w/ certified crypto module)
- SAF & IBM RACF integration with z/OS®
- Internet Content Adaptation Protocol
- W3C XML Encryption
- W3C XML Signature

- S/MIME encryption and digital signature
- WS-Security 1.0, 1.1
- WS-I Basic Security Profile 1.0, 1.1
- WS-SecurityPolicy
- WS-SecureConversation 1.3

Transport and Connectivity

- HTTP, Secure HTTP (HTTPS), WebSocket Proxy
- FTP, FTPS, SFTP
- WebSphere MQ
- WebSphere MQ File Transfer Edition (MQFTE)
- TIBCO EMS
- WebSphere Java Message Service (JMS)
- IBM IMS™ Connect & IMS Callout
- NFS
- AS1, AS2, AS3, AS4, ebMS 2.0, CPPA 2.0, POP, SMTP
- DB2®, Microsoft SQL Server, Oracle, Sybase, IMS
- IPv4, IPv6
- Link Aggregation Control Protocol (LACP)
- Virtual LAN (VLAN)
- Dynamic Host Configuration Protocol (DHCP)

Transport Layer Security

- TLS versions 1.0, 1.1 and 1.2, and SSL version 3
- Server Name Indication (SNI)
- Elliptical Curve Cryptography (ECC)
- Perfect Forward Security (PFS)

Public key infrastructure (PKI)

- RSA, 3DES, DES, AES, SHA, X.509, CRLs, OCSP
- PKCS#1, PKCS#5, PKCS#7, PKCS#8, PKCS#10, PKCS#12
- XKMS for integration with Tivoli® Security Policy Manager (TSPM)

Management

- Simple Network Management Protocol (SNMP)
- SYSLOG, Secure Shell (SSH), REST, SOAP

Web services

- **WS-I Basic Profile 1.0, 1.1**
- **WS-I Simple SOAP Basic Profile**
- **WS-Policy Framework**
- **WS-Policy 1.2, 1.5**
- **WS-Trust 1.3**
- **WS-Addressing**
- **WS-Enumeration**
- **WS-Eventing**
- **WS-Notification**
- **Web Services Distributed Management (WSDM)**
- **WS-Management**
- **WS-I Attachments Profile**
- **SOAP Attachment Feature 1.2**
- **SOAP with Attachments (SwA)**
- **Direct Internet Message Encapsulation (DIME)**
- **Multipurpose Internet Mail Extensions (MIME)**
- **XML-binary Optimized Packaging (XOP)**
- **Message Transmission Optimization Mechanism (MTOM)**
- **WS-MediationPolicy (IBM standard)**
- **Universal Description, Discovery and Integration (UDDI versions 2 and 3), UDDI version 3 subscription**
- **WebSphere Service Registry and Repository (WSRR)**

Why IBM?

Thousands of organizations of all sizes employ IBM DataPower Gateway technology to reduce IT complexity, reduce their costs, improve their return-on-investment and foster new innovation and business. The IBM approach to network simplification, security and optimization provides value to a wide range of organizations throughout major industries and across more than 60 countries. With DataPower modular component-based architecture, you can select the capabilities you need today and add future capabilities as your requirements grow. Engage the IBM team and take advantage of our deep industry and technical knowledge combined with the robust capabilities provided by IBM DataPower Gateways. Work smarter with IBM.

For more information

To learn more about IBM DataPower Gateways, contact your IBM sales representative or your IBM Business Partner, or visit the following website: <https://www.ibm.com/products/datapower-gateway>

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